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LEE, ANDREW CHUNG CHEUNG				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket1@thepatentattorneys.com
hholmes@thepatentattorneys.com
fgraziano@thepatentattorneys.com

Office Action Summary

Application No.

10/602,358

Applicant(s)

SCHIFF, LEONARD N.

Examiner

Andrew C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 11, 13 - 23, 26 - 32, 35 - 37, 43 - 47 is/are pending in the application.
- 4a) Of the above claim(s) 12, 24, 25, 33, 34, 38 - 42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 11, 13 - 23, 26 - 32, 35 - 37, 43 - 47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/03/2010, 12/10/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Claims 12, 24, 25, 33, 34, 38 – 42 have been canceled.
2. Claims 43 – 47 are newly added.
3. Claims 1 – 11, 13 – 23, 26 – 32, 35 – 37, 43 – 47 are pending.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 2/03/2010, 12/10/2009 was filed, and the submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Regarding claims 43 – 47, the claimed subject matters “computer program product” and “computer readable-medium” lack antecedent basis for terminology and are not supported in the applicants' specification. Clarification and appropriate correction are required.

Claim Objections

5. Claims 1, 35 are objected to because of the following informalities:
Regarding claim 1, the sentence “wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot” is suggested to change to “wherein each interval in the plurality of intervals

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comprises a duration which is shorter than a duration of the time slot". Claim 35 has the same discrepancies as in claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 43 – 47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 43, the claim subject matters "computer program product" in the preamble and "code for" in the main body of claim were not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application **was originally filed**, had possession of the claimed invention. The claims 44, 45, 46, 47 are also rejected under 35 U.S.C. 112, first paragraph, since the claims are dependent upon independent claim.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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9. Claims 43 – 47 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter since it fails to be limited to embodiments which fall within a statutory category.

Regarding claim 43, claim 43 recite, “a computer program product, comprising: a computer-readable medium, comprising: Code for causing at least one computer to receive one or more scattering instructions”, in lines 1 – 2.

In the specification, as evidenced at page 14, paragraph [0056] of the specification, in “can also be embodied in the form of program code, for example, whether stored in a storage medium, loaded into and/or executed by a machine, or transmitted over some **transmission medium or carrier**, such as over electrical wiring or cabling, through fiber optics, or via **electromagnetic radiation**, wherein, when the program code is loaded into and executed by a machine, such as a processor, the machine becomes an apparatus for practicing the invention. When implemented on a general-purpose processor, the program code segments combine with the processor to provide a unique device that operates analogously to specific logic circuits”

In view of the above remark, applicant has provided antecedent basis for the claim terminology “computer program product”, and “computer-readable medium”. Applicant has also provide intrinsic evidences of embodiments (i.e. storage medium, or transmitted over some **transmission medium or carrier**, such as over electrical wiring or cabling, through fiber optics, or via **electromagnetic radiation...**”) intended to be covered within the meaning of medium. One of the covered embodiments is a transmission media.

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Transmission media in the context of this disclosure over "transmitted over some **transmission medium or carrier**, such as over electrical wiring or cabling, through fiber optics, or via **electromagnetic radiation**", which are not a Manufacture within the meaning of 35 USC. 101, and electrical wiring or cabling, through fiber optics, or via electromagnetic radiation, on which the program code is still unavailable to the processor. In such embodiments, the program code is still unable to act as a computer component and have its functionality realized. Thus claims that recite nothing but the physical characteristics of a form of energy, such as frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Thus this embodiment is also non-statutory.

In view of the above analysis, claim 43 is merely directed to computer readable media that cover signals *per se*. The claim is ineligible for patent protection as failing to be limited to embodiments which fall within a statutory category.

The claims 44, 45, 46, 47 are also rejected under 35 U.S.C. 101, since the claims are dependent upon independent claim.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

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obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1 – 11, 13 – 23, 26 – 32, 35 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heath (US 6842437 B1), and Beshai et al. (6034960) in view of Gehring et al. (US 20040028071 A1).

Regarding claims 1, 35, Heath discloses a method, a terminal device (*"method, satellite terminal", Abstract*) for transmitting data in a communication system (*broadband multimedia satellite system; Abstract, Fig. 1, Fig. 2, col. 2, lines 43 – 65, col. 3, lines 57 – 61*) wherein the data is transmitted in a communication frame, the communication frame comprising a set of time slots (*frame comprising a plurality of timeslots; Abstract*), the method comprising: means for receiving one or more scattering instructions from a gateway (*receive a command.....reordering scheme, and bandwidth on demand satellite communication system; Abstract, col. 2, lines 43 – 65*); means for dividing data corresponding to a time slot in the set of time slots into a plurality of intervals in accordance with the one or more scattering instructions (*the command indicating at least.....the timeslot reordering scheme being selected to reorder.....in a nonsequential order...; col. 2, lines 43 – 65, Fig. 1, Fig. 2*), Heath also discloses means for transmitting the data in accordance with locations of the plurality of intervals within the communication frame (*"....transmit data during a frame comprising a plurality of timeslotsto reorder the plurality of timeslots in the frame in a nonsequential order col. 2, lines 43 – 51*), except explicitly wherein each interval in the plurality of intervals comprises a duration shorter than a

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duration of the time slot; scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions, wherein the portion of the plurality of intervals are scattered non-contiguously. Heath does not disclose explicitly wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot; scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions, wherein the portion of the plurality of intervals are scattered non-contiguously.

Beshai et al. in the same field of endeavor teach wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot (*actual allocated time slot (= 50 at frame cycle 1, stream number 0) is smaller than guaranteed time-slot allocation (=50.60); Fig. 10, col. 9, lines 53 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*). The combined system of Heath and Beshai et al. does not teach scattering at least a portion of the plurality of intervals to one or more disparate

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time slots in the set of time slots based upon the one or more scattering instructions, wherein the portion of the plurality of intervals are scattered non-contiguously.

Gehring et al. (US 20040028071 A1) in the same field of endeavor teach scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions (*"reallocation algorithm....data slot assignment are scattered across the entire data slot section....; para. [0031]"*), wherein the portion of the plurality of intervals are scattered non-contiguously (*"....to consolidate the disjoint free time blocks...."; para. [0031]"*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath and Beshai et al to include the features of scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions, wherein the portion of the plurality of intervals are scattered non-contiguously as taught by Gehring et al. One of ordinary skill in the art would be motivated to do so for providing a Medium Access Control layer protocol and method for use in a network system which provides dynamic data slot reallocation (*as suggested by Gehring et al., see para. [0042]"*).

Regarding claims 2, 9, 36, Heath discloses the method, terminal device, apparatus claimed wherein the receiver (*Destination Satellite terminal, col. 7, lines 35 – 42*) receiving configuration information (*the number of the slots locations*), wherein the one or more scattering instructions are included with the

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configuration information (*"numbering scheme allows spreading of the slots in a frame...; Figs 6 – 10, col. 2, lines 45 – 51, col. 8, lines 31 – 54, col. 7, lines 35 – 42).*

Regarding claims 3, 10, 37, Heath discloses the method, terminal device, apparatus claimed a memory (*a plurality of queues*) for storing time-scattering control information, wherein one or more scattering instructions comprise an index into a memory of stored time-scattering control information (*numbering scheme allows spreading of the slots in a frame..., convert slot numbers that are assigned.....;* *Figs 6 – 10, col. 2, lines 45 – 51, col. 8, lines 31 – 54, col. 7, lines 35 – 42).*

Regarding claims 4, 11, Heath discloses the method, terminal device, apparatus claimed wherein the memory is disposed within a terminal device (*"a plurality of queues connected to the processor...."*, *col. 2, lines 58 – 67, col. 3, lines 1 – 17).*

Regarding claims 5, 13, Heath discloses the method, terminal device claimed wherein the one or more scattering instructions comprise a table of information that indicates a temporal of scattering the data (*Figs. 6 – 10, col. 8, lines 31 – 65).*

Regarding claim 6, Heath does not disclose the method claimed wherein the tabular indication specifies, by time interval identifier, a starting location for the scattered data.

Beshai et al. disclose the method claimed wherein the tabular indication specifies, by time interval identifier, a starting location for the scattered data (*Fig.*

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16, Fig. 17, col. 15, lines 2 – 21). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of the method claimed wherein the tabular indication specifies, by time interval identifier, a starting location for the scattered data as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

Regarding claims 7, 14, Heath discloses the method, terminal device claimed wherein the one or more scattering instructions comprise an algorithm for temporally scattering the data, how to scatter the interval (*"timeslot reordering scheme", Fig. 5, Fig. 6, "the command indicating at least.....the timeslot reordering scheme being selected to reorder.....in a nonsequential order...; col. 2, lines 43 – 65, col. 8, lines 31 – 65*).

Regarding claim 8, Heath discloses a terminal device transmitting data in a communication system (*broadband multimedia satellite system; Abstract, Fig. 1, Fig. 2, col. 2, lines 43 – 65, col. 3, lines 57 – 61*), comprising: a receiver (*Destination Satellite terminal, col. 7, lines 35 – 42*) configured to receive one or more scattering instructions from a gateway device (*receive a command....., reordering scheme, and bandwidth on demand satellite communication system; Abstract, col. 2, lines 43 – 65*); a processor (*a processor; col. 2, lines 58 – 67, col. 3, lines 1 – 6*) configured to: divide data associated with a time slot of a

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communication frame into a plurality of intervals in accordance with the one or more scattering instructions (*the command indicating at least.....the timeslot reordering scheme being selected to reorder.....in a nonsequential order...; col. 2, lines 43 – 65, Fig. 1, Fig. 2*), and Heath further disclose transmitter configured to transmit the plurality of intervals in accordance with locations of the plurality of intervals within the communication frames ("*....transmit data during a frame comprising a plurality of timeslotsto reorder the plurality of timeslots in the frame in a nonsequential order col. 2, lines 43 – 51*, except wherein each interval comprises a shorter duration than the time slot; distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one or more scattering instructions, wherein the plurality of intervals are distributed non-contiguously.

Heath does not disclose wherein each interval comprises a shorter duration than the time slot; distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one or more scattering instructions, wherein the plurality of intervals are distributed non-contiguously.

Beshai et al. in the same field of endeavor teach wherein each interval comprises a shorter duration than the time slot (*actual allocated time slot (= 50 at frame cycle 1, stream number 0) is smaller than guaranteed time-slot allocation (=50.60); Fig. 10, col. 9, lines 53 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of wherein each interval comprises a shorter

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duration than the time slot as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

The combined system of Heath and Beshai et al. does not teach distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one or more scattering instructions, wherein the plurality of intervals are distributed non-contiguously.

Gehring et al. in the same field of endeavor teach distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one or more scattering instructions (*"reallocation algorithm....data slot assignment are scattered across the entire data slot section....; para. [0031]*), wherein the plurality of intervals are distributed non-contiguously (*"....to consolidate the disjoint free time blocks...."; para. [0031]*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath and Beshai et al to include the features of distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one or more scattering instructions, wherein the plurality of intervals are distributed non-contiguously as taught by Gehring et al. One of ordinary skill in the art would be motivated to do so for providing a Medium Access Control layer protocol and

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method for use in a network system which provides dynamic data slot reallocation (*as suggested by Gehring et al., see para. [0042]*).

Regarding claim 15, Heath discloses a method (*Abstract*), comprising: receiving a request from a terminal device for access to a communications channel (*receiving a burst...checks for an access control....*"; *col. 7, lines 23 – 34*); generating a schedule of transmission for the terminal device, wherein the schedule of transmission specifies a division of data into a plurality of time intervals (*the command indicating at least.....the timeslot reordering scheme being selected to reorder.....in a nonsequential order...*; *col. 2, lines 43 – 65, Fig. 1, Fig. 2*), the schedule of transmission further specifies a location of each time interval from the plurality of time intervals within the communication frame (*col. 2, lines 28 – 31*), generating one or more scattering instructions in accordance with the schedule of transmission (*col. 2, lines 46 – 57*); and transmitting the one or more scattering instructions to the terminal device ("*...transmit data during a frame comprising a plurality of timeslotsto reorder the plurality of timeslots in the frame in a nonsequential order col. 2, lines 43 – 51*"), except each time interval shorter in duration than a time slot of a communication frame, wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner. Heath does not disclose each time interval shorter in duration than a time slot of a communication frame, wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner.

Beshai et al. in the same field of endeavor teach each time interval shorter in duration than a time slot of a communication frame (*actual allocated time slot (= 50 at frame cycle 1, stream number 0) is smaller than guaranteed time-slot allocation (=50.60); Fig. 10, col. 9, lines 53 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of each time interval shorter in duration than a time slot of a communication frame as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

The combined system of Heath and Beshai et al. does not teach wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner. Gehring et al. in the same field of endeavor teach wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner (*"reallocation algorithm....data slot assignment are scattered across the entire data slot section.....to consolidate the disjoint free time blocks...."; para. [0031]*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath and Beshai et al to include the features of wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner as taught by Gehring et al. One of ordinary skill in the art would be motivated to do

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so for providing a Medium Access Control layer protocol and method for use in a network system which provides dynamic data slot reallocation (*as suggested by Gehring et al., see para. [0042]*).

Regarding claims 16, 27, Heath discloses the method, apparatus claimed wherein receiving the request comprises receiving an indication of the amount of data queued at the terminal device for communication ("*Rate request, ...gets a constant allocation of the uplink capacity....*", col. 10, lines 40 – 63).

Regarding claims 17, 28, Heath discloses the method, apparatus claimed wherein the schedule of transmission comprises a list of the plurality of time intervals (*col. 12, lines 62 – 67, col. 13, lines 1 – 2, col. 15, lines 45 – 62*).

Regarding claims 18, 21, 29, Heath does not disclose explicitly wherein each time interval comprises a starting location in the communication frame and a transmission duration.

Beshai et al. in the same field of endeavor teach wherein each time interval comprises a starting location in the communication frame and a transmission duration (*Fig. 2, col. 5, lines 36 – 46, Fig. 10, col. 9, lines 55 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of wherein each time interval comprises a starting location in the communication frame and a transmission duration as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to

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changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

Regarding claims 19, 30, Heath does not disclose explicitly transmitting modulation control information for the time scattered data.

Beshai et al. in the same field of endeavor teach transmitting modulation control information for the time scattered data (*Fig. 2a, col. 5, lines 17 – 26*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of transmitting modulation control information for the time scattered data as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

Regarding claim 20, 31, Beshai et al. disclose the method claimed wherein the communications frames are divided into a number of time slots in accordance with a dividing rate (*"allocation of a preferably constant number of slots each frame", col. 10, lines 40 – 64*).

Regarding claim 22, Heath does not disclose explicitly wherein the starting location comprises a first time interval identifier and the transmission duration comprises a second time interval identifier (*Fig. 10, col. 9, lines 55 – 65*).

Beshai et al. in the same field of endeavor teach wherein the starting location comprises a first time interval identifier and the transmission duration comprises a second time interval identifier (*Fig. 10, col. 9, lines 55 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of wherein the starting location comprises a first time interval identifier and the transmission duration comprises a second time interval identifier as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

Regarding claims 23, 32, Heath does not disclose explicitly receiving data from the terminal device, transmitted in a scattered manner per the scattering instructions, and reordering the data in accordance with the scattering schedule to obtain the data in its originally intended order.

Beshai et al. in the same field of endeavor teach receiving data from the terminal device, transmitted in a scattered manner per the scattering instructions, and reordering the data in accordance with the scattering schedule to obtain the data in its originally intended order (*col. 9, lines 55 – 67, col. 10, lines 1 – 9*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of receiving data from the terminal device, transmitted in a scattered

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manner per the scattering instructions, and reordering the data in accordance with the scattering schedule to obtain the data in its originally intended as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (as suggested by Beshai et al., see col. 3, lines 48 – 51).

Regarding claim 26, Heath discloses an apparatus (*satellite terminal, Abstract*), comprising: means for receiving a request from a terminal device for access to a communications channel (*receiving a burst...checks for an access control...."; col. 7, lines 23 – 34*); means for generating a schedule of transmission for the terminal device, wherein the schedule of transmission specifies a division of data into a plurality of time intervals (*the command indicating at least....the timeslot reordering scheme being selected to reorder.....in a nonsequential order...; col. 2, lines 43 – 65, Fig. 1, Fig. 2*), the schedule of transmission further specifies a location of each time interval from the plurality of time intervals within the communication frame (*col. 2, lines 28 – 31*), means for generating one or more scattering instructions in accordance with the schedule of transmission (*col. 2, lines 46 – 57*); and means for transmitting the one or more scattering instructions to the terminal device (*"....transmit data during a frame comprising a plurality of timeslotsto reorder the plurality of timeslots in the frame in a nonsequential order col. 2, lines 43 – 51*), except each time interval shorter in duration than a time slot of a communication frame,

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wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner.

Heath does not disclose each time interval shorter in duration than a time slot of a communication frame, wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner.

Beshai et al. in the same field of endeavor teach each time interval shorter in duration than a time slot of a communication frame (*actual allocated time slot (= 50 at frame cycle 1, stream number 0) is smaller than guaranteed time-slot allocation (=50.60); Fig. 10, col. 9, lines 53 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of each time interval shorter in duration than a time slot of a communication frame as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

The combined system of Heath and Beshai et al. does not teach wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner. Gehring et al. in the same field of endeavor teach wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner (*"reallocation algorithm....data slot assignment are scattered across the entire data slot section.....to consolidate the disjoint free*

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time blocks...."; para. [0031]). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath and Beshai et al to include the features of wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner as taught by Gehring et al. One of ordinary skill in the art would be motivated to do so for providing a Medium Access Control layer protocol and method for use in a network system which provides dynamic data slot reallocation (*as suggested by Gehring et al., see para. [0042]*).

12. Claims 43 – 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gehring et al. (US 20040028071 A1) in view of Beshai et al. (6034960).

Regarding claim 43, Gehring et al. disclose a computer program product (*compact disks units, paras. [0056], [0057]*), comprising: a computer-readable medium (*compact disks units, paras. [0056], [0057]*), comprising: Code (*MAC protocol software*) for causing at least one computer to receive one or more scattering instructions from a gateway device (*master device; para. [0029], Fig. 1, Fig. 2*); code for causing the at least one computer to divide data associated with a time slot of a communication frame into a plurality of intervals in accordance with the one or more scattering instructions (*paras. [0059], Fig. 2, [0062]*), except wherein each interval comprises a shorter duration than the time slot; Gehring et al. also disclose code (*MAC layer software*) for causing the at least one computer to distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one

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or more scattering instructions (*data slot assignments are scattered across the entire data slot....., " para. [0031]*), wherein the plurality of intervals are distributed non-contiguously (*disjoint free time blocks.....; para. [0031]*); and code for causing the at least one computer to transmit the plurality of intervals in accordance with locations of the plurality of intervals within the communication frames (*para. [0029]*).

Gehring et al. do not disclose wherein each interval comprises a shorter duration than the time slot.

Beshai et al. in the same field of endeavor teach wherein each interval comprises a shorter duration than the time slot (*actual allocated time slot (= 50 at frame cycle 1, stream number 0) is smaller than guaranteed time-slot allocation (=50.60); Fig. 10, col. 9, lines 53 – 65*). At time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of Heath to include the features of wherein each interval comprises a shorter duration than the time slot as taught by Beshai et al. One of ordinary skill in the art would be motivated to do so for providing a scheduler to simultaneously support highly precise service rates and provide excellent responsiveness to changing capacity requirements, by being able to offer each stream a real number of time-slots, on average, per frame (*as suggested by Beshai et al., see col. 3, lines 48 – 51*).

Regarding claim 44, Gehring et al. disclose the computer program product claimed the computer-readable medium further comprising code for causing the at least one computer to receive configuration information, wherein

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the configuration information includes the one or more scattering instructions (*paras. [0062]*).

Regarding claim 45, Gehring et al. disclose the computer program product claimed wherein the one or more scattering instructions include an index to a memory that stores time scattering control information (*RAM, state information, table, para. [0069]*).

Regarding claim 46, Gehring et al. disclose the computer program product claimed wherein the one or more scattering instructions include a table of information that indicates a temporal scattering of the data (*state table stored in RAM, para. [0069]*).

Regarding claim 47, Gehring et al. disclose the computer program product claimed wherein the one or more scattering specify an algorithm for temporally scattering the data (*paras. [0030], [0031]*).

Response to Arguments

13. Applicant's arguments filed on 2/17/2010 with respect to claims 1 – 11, 13 – 23, 26 – 32, 35 – 37, 43 – 47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is

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filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571)272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C Lee/
Examiner, Art Unit 2476 <3Q10::5_04_10>

/Ayaz R. Sheikh/
Supervisory Patent Examiner, Art
Unit 2476